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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Whyte, et al.
SERIAL NO.: 10/663,429 GROUP NO.: 3611
FILING DATE: September 16, 2003 EXAMINER: Not yet assigned
TITLE: APPLICATION TOOL

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Commissioner for Patents
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Sir:

Attached please find a certified copy of Great Britain priority application No. 0221741.2 filed on September 19, 2002 for the above-referenced patent application.

Date: April 5, 2004
Reg. No. 54,089

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Respectfully submitted,

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INVESTOR IN PEOPLE

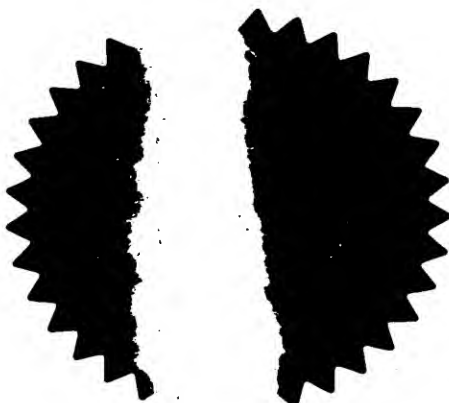
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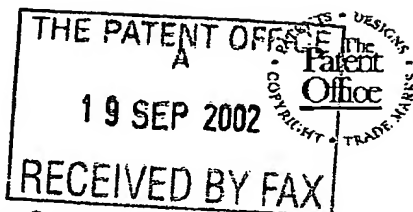
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Patents Act 1977
(Rule 16)19SEP02 E749471-1 D10002
P01/7760 0.00-0221741.2

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1. Your reference

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0221741.2

19 SEP 2002

3. Full name, address and postcode of the or of each applicant (underline all surnames)

Spedian Limited
Coltas House
64 Waterloo Street
GLASGOW
G2 7DA

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

8415937002

4. Title of the invention

Application tool

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Kennedys Patent Agency Limited
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GLASGOW
G1 2DT

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8058240002

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7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

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Continuation sheets of this form

Description

11

Claim(s)

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Abstract

-

Drawing(s)

4

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Priority documents

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Statement of inventorship and right to grant of a patent (Patents Form 7/77)

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11.

I/We request the grant of a patent on the basis of this application.

Signature

Kennedy

Date

KENNEDYS

19 September 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

David Kennedy - 0141 226 6826

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1

1 Application tool

2

3

4 The present invention relates to the field of mounting
5 panels to surfaces, and in particular to a tool for
6 applying a sheet material to the surface of a structure.

7

8 In the field of advertising, there exists a need to
9 temporarily apply advertising display panels to permanent
10 or semi-permanent structures. Such structures
11 traditionally include buildings and billboards. More
12 recently, advertising display panels have been applied to
13 the sides of vehicles in order that they may be used as a
14 mobile advertising medium. Such advertisements provide a
15 highly visible display reaching potential customers
16 across a range of geographical regions.

17

18 Large advertising panels can be difficult to handle and
19 mount onto the surface of the structure. The panel must
20 be securely fastened to prevent peeling, billowing and
21 flapping. Furthermore, it is necessary for the panel to
22 be smoothly applied without creases, air pocket and
23 wrinkles so that the displayed image is not distorted.

1 The dynamic nature of the advertising industry requires
2 that the panels can be changed quickly and easily.

3

4 It would therefore be desirable to have equipment suited
5 to the task of mounting a panel to a vehicle surface.

6

7 It is one object of the invention to provide a tool for
8 easing the mounting of panels to surface structures.

9

10 It is another object of the invention to provide a method
11 for mounting a panel to a surface of the structure.

12

13 Further aims and objects of the invention will become
14 apparent from a reading of the following description.

15

16 According to a first aspect of the invention, there is
17 provided a tool for applying a sheet material to a
18 surface of a structure, comprising:

- 19 - a locating assembly for locating the tool with respect
20 to the structure, said locating assembly including a
21 support frame and translation means for allowing
22 relative movement between the structure and the tool;
23 - applicator means for applying the sheet material to the
24 surface, said applicator means being supported by the
25 support frame.

26

27

28 The applicator means may comprise a spindle and a central
29 core, the roll of sheet material formed around the
30 central core.

31

1 In one embodiment, the support frame comprises a spar
2 oriented along a first axis, the spar being suspended
3 above the structure by the translation means.

4

5 Preferably, the spindle is attached to the spar in a
6 perpendicular arrangement. More preferably, the first
7 axis is oriented perpendicularly to the surface, and the
8 spindle is oriented parallel to the surface.

9

10 Two applicator means may be provided, one at each
11 opposing end of the support frame.

12

13 Preferably, the spindle is rotatable with respect to the
14 support structure. More preferably, the spindle is
15 provided with a clutch mechanism such that rotation of
16 the spindle occurs at a predetermined torque.

17

18 The translation means may comprise one or more wheels.
19 The spindle may be provided with a pair of buffers,
20 positioned at either side of the roll of sheet material.

21

22 The tool may be provided with auxiliary urging means for
23 effecting releasable attachment of the panel to the
24 surface.

25

26 The structure may be a vehicle or a part of a vehicle.
27 The panel may be an advertising display panel.

28

29 According to a second aspect of the invention, there is
30 provided a tool for applying a sheet material to a
31 surface of a vehicle, comprising:

32 - a locating assembly for locating the tool with respect
33 to the vehicle, said locating assembly including a

1 support frame and translation means for allowing
2 relative movement between the vehicle and the tool;
3 - applicator means for applying the sheet material to the
4 surface, said applicator means being supported by the
5 support frame.

6
7 According to a third aspect of the invention, there is
8 provided a method for applying a sheet material to a
9 surface of a structure, comprising the steps of:
10 - locating a tool with respect to the structure, said
11 tool comprising a support frame, translation means, and
12 applicator means supported by the support frame;
13 - removably attaching first portion of the sheet material
14 onto the surface of the structure;
15 - translating the tool with respect to the structure such
16 that the applicator means moves in a direction
17 substantially parallel to the surface, thereby
18 juxtaposing successive portions of the sheet material
19 with the surface.

20
21 According to a fourth aspect of the invention, there is
22 provided a method for applying a sheet material to a
23 surface of a vehicle, comprising the steps of:
24 - locating a tool with respect to the vehicle, said tool
25 comprising a support frame, translation means, and
26 applicator means supported by the support frame;
27 - removably attaching first portion of the sheet material
28 onto the surface of the vehicle;
29 - translating the tool with respect to the structure such
30 that the applicator means moves in a direction
31 substantially parallel to the surface, thereby
32 juxtaposing successive portions of the sheet material
33 with the surface.

1
2 The method may comprise the additional step of forming
3 the sheet material into a roll on a central core prior to
4 the removable attachment of the first portion of sheet
5 material.

6
7 There will now be described, by way of example only,
8 various embodiments of the invention with reference to
9 the following drawings, of which:

10

11 Figure 1 shows a perspective view of a tool in
12 accordance with an embodiment of the invention;

13

14 Figure 2 shows a side view of the tool of Figure 1
15 in use;

16

17 Figure 3 shows a side view of a tool in accordance
18 with an alternative embodiment of the invention;

19

20 Figure 4 shows a perspective view of a tool in
21 accordance with a further embodiment of the
22 invention;

23

24 Figure 5 shows a perspective view of a tool in
25 accordance with a further embodiment of the
26 invention.

27

28 Referring firstly to Figures 1 and 2, a tool 10 is shown
29 in position on a vehicle trailer 12. The tool 10
30 comprises a locating assembly consisting of a support
31 frame 14 and wheels 18, 19. Wheels 18 are mounted on a
32 cylindrical spar 16, located substantially horizontally
33 across the width of the trailer 12. Wheel 19 is mounted

1 on an auxiliary member 17, rigidly fixed to the spar 16
2 approximately perpendicularly. The wheels 18, 19 rest on
3 the upper surface of the trailer, thereby suspending the
4 support frame above the trailer and across the width of
5 the trailer.

6

7 At opposing ends of the spar 16 are mounted vertical
8 spindles 20. Each spindle is connected to a roll 22 of
9 sheet material 24.

10

11 Typically the panel has a sheet of PES (polyethersulfone)
12 fabric coated on both sides with PVC, with a matt lacquer
13 applied to the printing side. The lacquer allows the
14 panel to be printed. The sheet is UV stabilised, anti-
15 wicking and fire-retardant. The sheet is substantially
16 non-permeable in that it does not allow liquid or air to
17 readily pass through it.

18

19 The size of the sheet may vary to fit the size of the
20 side of a trailer. The typical weight is approximately
21 460g/m².

22

23 The reverse of the sheet 24 has strips of a fastener 27a
24 attached, for example by bonding with glue, ultrasonic
25 bonding, stapling or stitching. The strips are attached
26 around substantially the entire perimeter of the sheet,
27 in that there are substantially no gaps left for air or
28 fluid ingress after mounting on the truck or truck
29 trailer. Optionally, one or more fasteners may be placed
30 away from the perimeter in order to provide support for
31 the centre of the sheet.

32

1 The truck trailer 12 has corresponding fasteners 27b
2 arranged on its side surface, attached for example by
3 bonding with glue, ultrasonic bonding, stapling or
4 stitching.

5

6 The roll 22 is formed around a central core (not shown).
7 The spindle is connected to the central core via a
8 locking disc 26, which also functions to cover the end of
9 roll 22. The roll is releasably attachable from the
10 locking disc, and thus is releasably from the tool
11 itself.

12

13 The spindle is rotatable with respect to the support
14 frame, such that the entire roll may rotate about a
15 vertical axis. The rotation mechanism of the spindle
16 includes a clutch mechanism that is resistant to rotation
17 of the roll, such that rotation will only be effected
18 when a predetermined torque is applied to the roll. This
19 allows a degree of tension to be maintained in the sheet
20 material during the application process.

21

22 In use the tool is located in position on the vehicle as
23 described above. The wheels 18, 19 rest on the upper
24 surface of the vehicle, and suspend the support frame and
25 rolls 22. The Figures show the panel being applied from
26 the rear of the trailer towards the front, although the
27 application could equally be used in the reverse
28 direction, from front to rear.

29

30 The outward edge of sheet material is withdrawn from the
31 roll, just enough to align the fasteners at the trailing
32 edge of the panel with the corresponding connectors on
33 the surface of the vehicle. The fasteners are then

1 pushed into engagement. The tool is then moved with
2 respect to the trailer in a forward direction. The
3 clutch mechanism initially resists the unrolling of the
4 sheet material until sufficient tension has built up in
5 the sheet. When the tension is such that a predetermined
6 torque acts to the roll, the sheet material is allowed to
7 unroll and the tool moves along the length of the
8 trailer. As the tool moves, the sheet material is
9 juxtaposed with the surface of the vehicle, and at points
10 immediately rearward of the tool (as it moves towards the
11 front of the trailer), the fasteners 27a, 27b are pushed
12 together to attach the panel.

13

14 The tool allows the panel to be attached simply and
15 quickly to the surface of a trailer. The gradual, linear
16 attachment of the panel reduces the likelihood of forming
17 air bubbles, creases, and wrinkles, all of which would
18 distort the displayed image.

19

20 The embodiment shown in Figure 1 and 2 includes a wheel
21 19 mounted on an auxiliary member 17. This arrangement
22 allows the whole tool to be pivoted about the spar when
23 loading or unloading rolls 22. By pivoting the tool (in
24 a clockwise direction for the example shown in the
25 Figures), extra ground clearance and manoeuvrability is
26 gained. The wheel arrangement 17, 19 prevents pivoting
27 of the tool in the opposite direction.

28

29 Figures 3 and 4 show alternative embodiments of the
30 invention. In these examples, the support frame 14
31 comprises a pair of horizontal spars 16a, 16b, each
32 having a pair of wheels 18a, 18b mounted thereon. The
33 vertical spindles are mounted centrally on a linking

1 frame member 42. This arrangement makes the tool less
2 prone to pivoting about the spars 16, and thus provides
3 additional stability to the tool.

4

5 The embodiment of Figure 3 is provided with further
6 support by way of the wheeled base assembly 32, which
7 rests on the ground surface during use and storage of the
8 tool. The assembly includes a height adjustable pillar
9 34, so that the weight of the tool can be distributed
10 between the upper surface of the trailer and the wheeled
11 base assembly.

12

13 An alternative embodiment is shown in Figure 5. This
14 example includes a support frame arrangement that differs
15 from the above-described embodiments, and has only a
16 single applicator. The support frame includes a locating
17 assembly 52 consisting of an upper frame element 52
18 running parallel to the vehicle surface. Mounted to the
19 support frame are wheels 53, which rest on the upper
20 surface during use.

21

22 The tool is also provided with a vertical support element
23 51 running adjacent to the roll of sheet material 22. At
24 the lower end of the vertical support element is a lower
25 frame element 55, having mounted thereto an additional
26 wheel 56. The lower frame element is attached to the
27 vertical support element 51 via a lockable pivot 54. In
28 use, the tool is located by placing the wheels on the
29 upper surface of the trailer while the lower frame
30 element 55 is aligned approximately parallel to the
31 vertical support element 56. Subsequently, the wheel is
32 locked into place on the underside of the vehicle trailer

1 by rotating the lower frame element about the pivot. The
2 tool is thus "clamped" onto the trailer.

3

4 The roll 22 is supported on its underside by bracket 58.
5 To assist in loading and unloading of the rolls, bracket
6 58 is pivotally mounted to the vertical support element
7 51. The roll 22 is locked to an upper spindle as before,
8 by means of a locking disc (not shown). Thereafter, the
9 bracket 58 is lifted such that it abuts the lower end of
10 the roll. A similar locking disc may be utilised.

11

12 It will be evident that various modifications could be
13 made to the above-described embodiments within the scope
14 of the invention. For example, the twin-roll arrangement
15 of Figures 1 to 4 could utilise a vertical support
16 element and lower bracket as described with reference to
17 Figure 5.

18

19 In addition, one or more rollers may be provided on the
20 tool for urging the fastening materials together. Such
21 rollers may extend rearward (with respect to the
22 direction of movement of the tool) in alignment with the
23 fastening material 27a, 27b. By biasing the rollers
24 against the sheet material, the fasteners could be forced
25 into engagement, removing the need to manually attach the
26 panel.

27

28 It is envisaged that the tool could be used to remove a
29 panel from a vehicle and coil the panel into a roll.

30

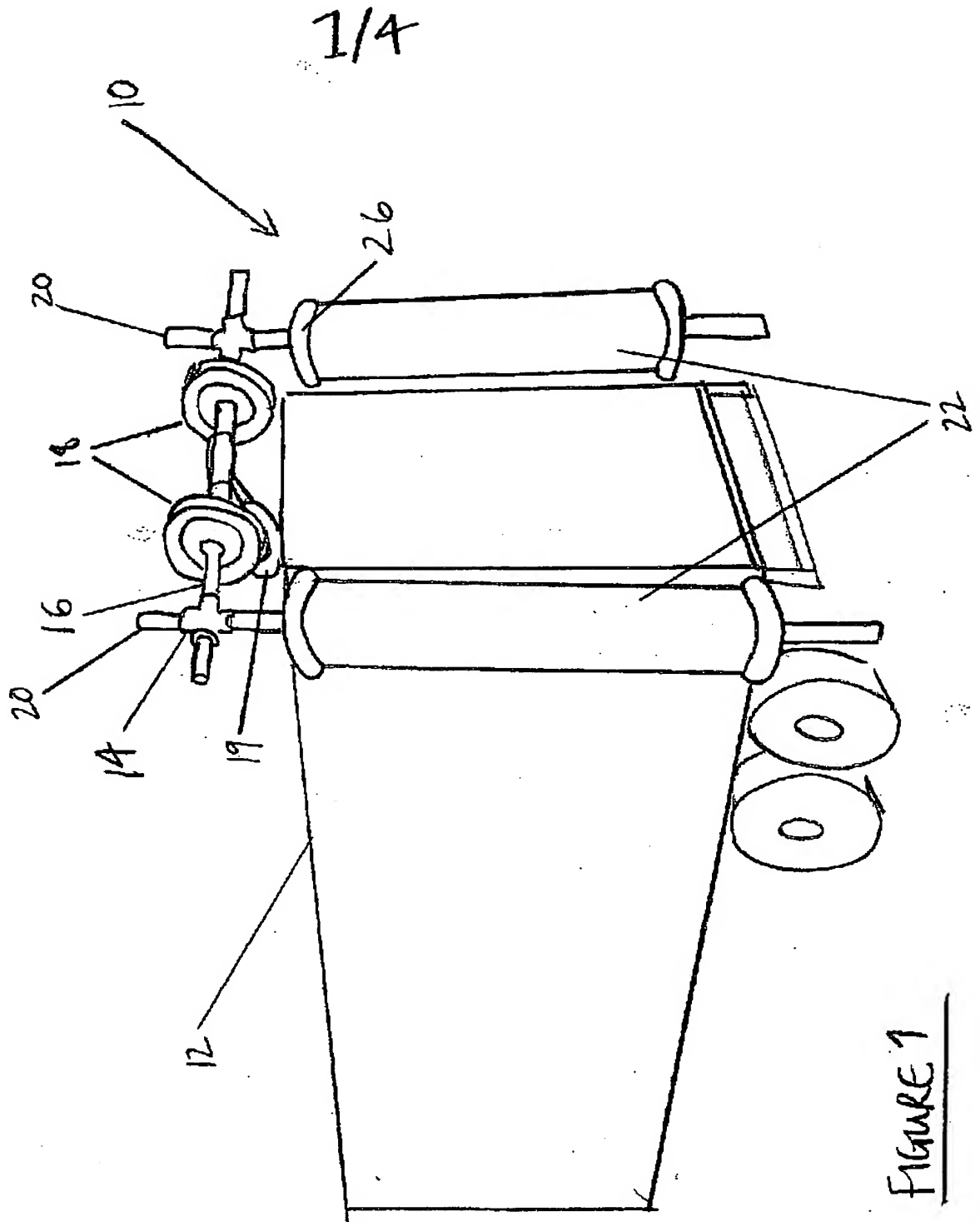
31 Although the foregoing description relates primarily to
32 the application of panels to surfaces on vehicles, the

11

1 tool could equally be used to apply panels to surfaces of
2 other structures, such as buildings or billboards.
3
4 Further modifications and improvements may be added
5 without departing from the scope of the invention herein
6 described.

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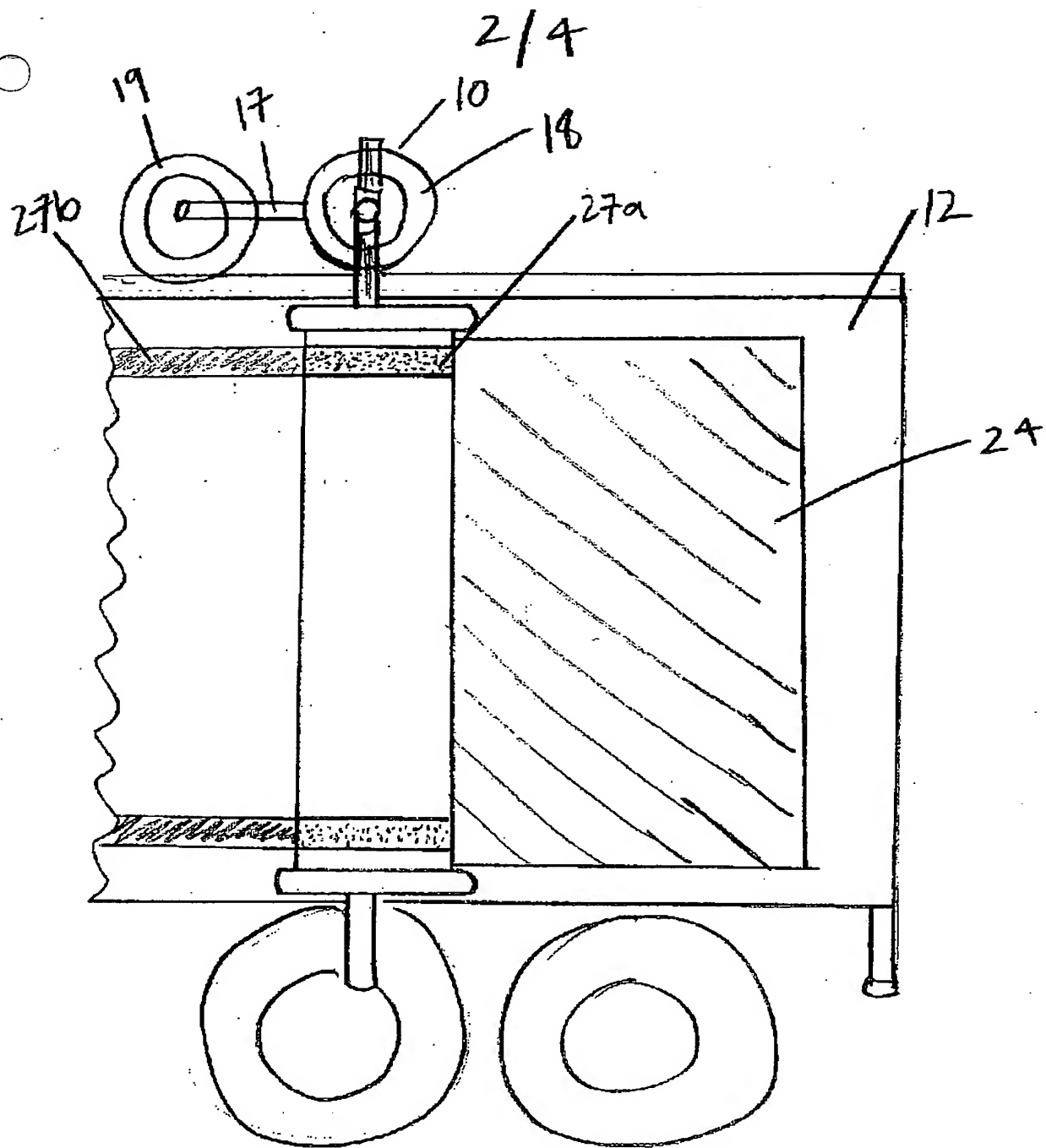
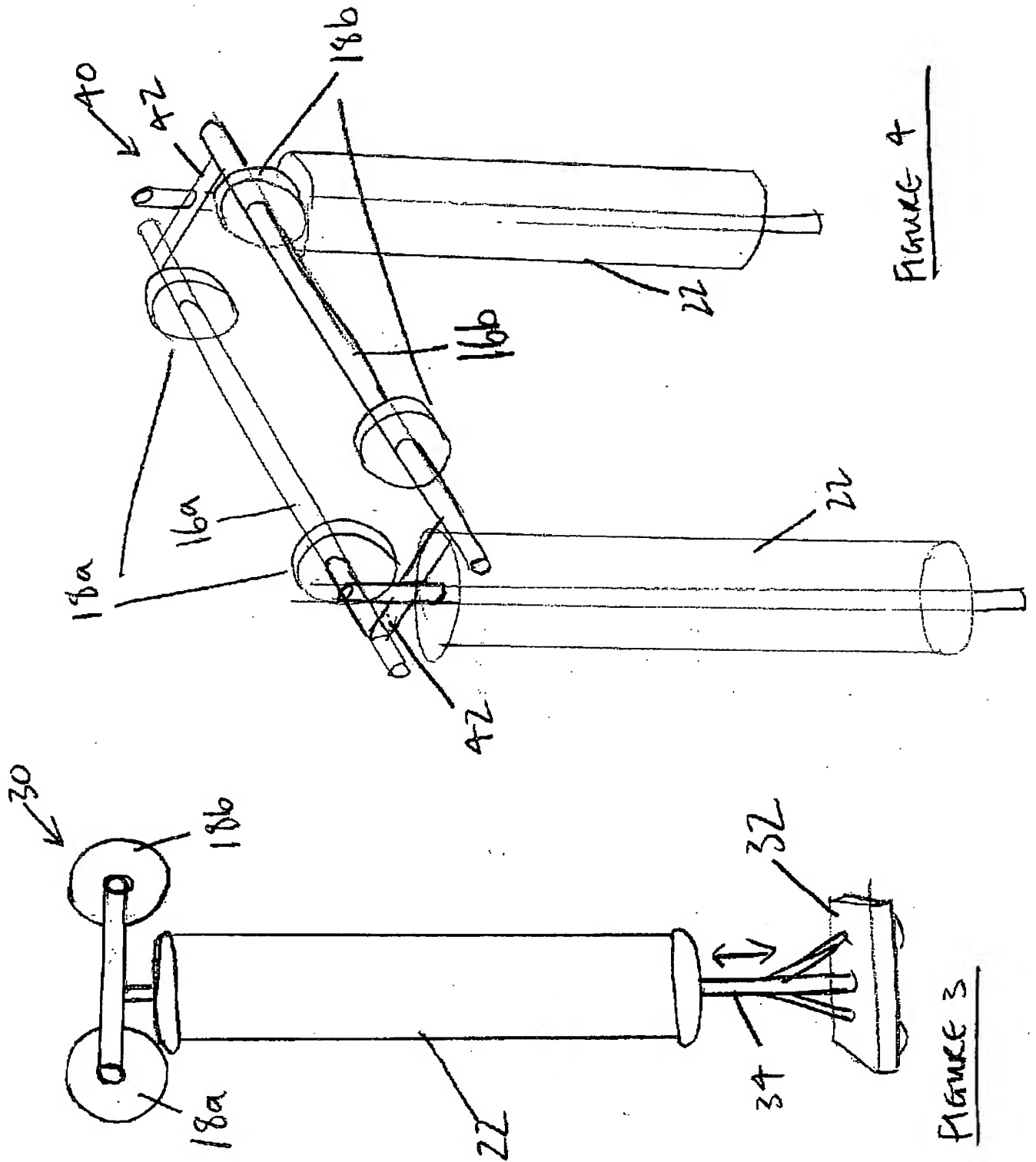


FIGURE 2

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